

Prothrum

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
Entomology Research Division

Reports - screw-worm *all 6-7-58*

P. O. Box 3391
Orlando, Florida
June 5, 1957

AIRMAIL

To: A. W. Lindquist, Head, Insects Affecting Man and Animals.
Section, Plant Industry Station, Beltsville, Maryland

From: R. C. Bushland

Subject: Weekly Report

Enclosed are two tables of data summarizing the status of the screw-worm field test for the week of May 26 through June 1. These records are in the same form used in my report of May 28, so please consult that report for details concerning the organization of the experiment.

Table 1 is a compilation of egg mass data. The four goat pens 14 miles south of the treated area yielded 94 egg masses of which only one failed to hatch. This suggests that a negligible number of flies drifted to the south against the prevailing wind. Only one of 43 egg masses taken 12 miles west of the treated area was infertile and this also may not be significant as we occasionally find such an egg mass in untreated areas. However, the sterility of 5.4 percent among 184 egg masses taken 15 miles north of the treated area suggests a considerable drift of flies in that direction.

The results within the treated area continue to be disappointing. The figure of 4.2 percent of non-hatching egg masses at Deer Park showed no better control than in the northern check area.

Two new goat pens were set up to better sample the southeastern part of the release area and the four original goat pens yielded more egg masses than they had in previous weeks. These goat pens which are closest to the Coast are presumably less affected by fly migration and it was encouraging that there was no hatch in 23.9 percent of the 188 egg masses collected.

Mr. Graham had a little difficulty with his fly production last week and attained only 80 percent of the quota. Part of the shortage was due to poor emergence as there was about 15 percent pupal mortality.

We added a new GS-4 Aid to the fly-production staff this week which should spread the work-load and allow for better care of larvae and pupae in the rearing procedures. We expect to correct our production difficulties during the coming week.

Mr. Baumhover has tests under way comparing holding procedures for sterilized pupae and newly emerged flies and the preliminary experiments will be completed this week. A study of those results will help us to develop procedures for reducing mortality and releasing more vigorous insects.

2-A. W. Lindquist-6-5-57

The summer rains are beginning to flood pastures in the St. Johns River valley and we expect an associated reduction in the native fly population. We hope that improvements in our techniques enabling us to release the full quota of vigorous flies combined with a natural reduction in the native population will so increase the proportion of sterile matings that we will attain 50 percent sterile egg masses by July 1.

If we can get 50 percent sterile egg masses by the end of this month we should start depressing the population and bring about a decided reduction in the native screw-worm population near the East Coast. If we do not get this 50 percent control through the 500 male release rate we would like to increase the release rate after July 1.

Last week we hired a new GS-4 Aid for fly release and thus relieved Mr. Husman of that chore so that he can develop a method for rearing larvae in tiers of vats. Mr. Husman is confident that he can have more compact rearing vats ready for this sort of rearing by July 1. This will enable us to double production in the existing Bithlo plant if funds are available for purchase of extra meat and blood and hiring just a few more helpers to assist with the larval rearing and care of an enlarged breeding stock.

There would be no additional flying expense and two more GS-4 Aids should give us enough help for sterilizing and packaging twice as many flies as we are now releasing.

So far we have only general information on case incidence in livestock since Mr. Skipper has had time only for random interviews with ranchers. The State of Florida and the Animal Disease Eradication Division had each assigned an inspector to work with Mr. Skipper on screw-worm survey but the outbreak of fever ticks near Lake Okeechobee diverted the activity of those men. Now that the goat pens are all established and the field crews are trained, Mr. Skipper is able to take up the screw-worm survey. He will work full time on case incidence studies from now on.

Mr. Skipper is interviewing ranchers near all of the goat pen locations to work up a summary of screw-worm damage to date with special reference to case incidence since April 1. He will leave with each cooperating rancher a field notebook with the request that the cooperator keep a simple daily record of screw-worm cases which we will pick up each week.

Although we have been delayed considerably beyond our expectation in starting this case incidence survey, we believe that adequate data will still be obtained, since so far our releases have not depressed the native fly population.

We had set up one liver-baited status trap near each group of goat pens. Mr. Skipper has attended these traps but none of our staff has had time to go through the catches to identify screw-worm flies. Since every working moment is needed for sterilized fly production and releases, egg mass data and case incidence information; it seemed best to abandon the fly trapping temporarily. I hope that after July 1 we will be able to make some trapping studies.

3-A. W. Lindquist-6-5-57

Mr. Husman has pointed out, that, if released flies are drifting with the wind immediately after being dropped, it should be simple to collect them in nets (of the type used at Brownsville) carried on a second airplane following behind the release airplane. The second plane could fly a parallel swath at various distances behind and to the windward of the first and at different altitudes to check on fly drift. I hope that it will be possible to initiate such tests after July 1.

✓ If, beginning with the new fiscal year, we release more flies than the anticipated 500 males per square mile per week, take up status trap studies, and hire a second airplane to study fly drift, the cost of the experiment will be increased. In my letter to you of May 14, I estimated L/A expenditures of \$60,629.00 to carry on fly releases at the 500 male rate from July through September. If we should expand our program along the lines suggested above, an estimate of \$100,000 would be more realistic.

(In triplicate)

cc: Dr. Sharman (3)
Dr. Campbell (1)
Mr. Bruce (2)
C. N. Smith (1)
Kerrville (1)
Crovalis (1)

4-A. W. Lindquist-6-5-57

Table 1.--Egg mass data, week of 5/26 through 6/1/57.

Pen : number:	Location	: Total: : masses:	Sterile: masses :	:Percent Total :sterile
1	15 miles north of treated area	51	3	
2		63	2	
3		37	0	
4		33	5	184 5.4
5	Near center of treated area	54	4	
6		45	1	
7		10	0	
8		10	0	119 4.2
9	Southeast of center of treated	36	3	
9a	area	20	10	
9b		59	20	
10		15	4	
11		34	4	
12		24	4	188 23.9
13	14 miles south of treated area	30	0	
14		30	1	
15		21	0	
16		13	0	94 1.1
17	12 miles west of treated area	4	0	
18		9	0	
19		15	1	
20		15	0	43 2.3

Table 2.--Fly release data.

Date	: Number of : boxes	: Approximate number : of flies
(1957)		
5/27	334	250,500
5/28	570	427,500
5/29	594	445,500
5/31	256	192,000
6/1	477	357,750
Total	2,231	1,673,250

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
Entomology Research Division

AIRMAIL

P. O. Box 3391
Orlando, Florida
June 12, 1957

OKB 6/14/57

To: A. W. Lindquist, Head, Insects Affecting Man and Animals
Section, Plant Industry Station, Beltsville, Maryland

From: R. C. Bushland

Subject: Weekly Report

Attached are two tables of data summarizing the progress of our screw-worm field test for the period June 2 through June 8.

You will note that there is not much change from last week. Mr. Baumhover's egg-mass collections show a little more ovipositional activity than during the preceding week. Apparently our released flies performed in about the usual manner as there was 10 percent sterility of egg masses in the Deer Park area and 19 percent of the egg masses collected near the Coast did not hatch. Bad weather prevented flying on June 8 and 9, so for the week there were only five days of releases totalling 1,730,500 flies. The 2,000,000 quota would have been attained if flies had been put out on the 8th. The flies intended for June 8 were released from an automobile on June 9.

As it takes seven days to complete the pupal stage the corrective measures which were adopted last week will not show in the tables of data until next week. Beginning with the pupae sterilized on June 9, we are packaging the insects at the rate of 550 pupae per release carton in expectation of releasing 500 vigorous flies per package from June 11 on.

Also last week we started holding the larvae for pupation in 40 sand trays instead of the 20 used previously. Further, the pupae are being held in aging trays at the rate of two liters per tray instead of the four liters held previously.

Mr. Baumhover's laboratory tests have indicated that the high pupal mortality and poor adult longevity were due to overcrowding. It has increased the work load to correct this situation but our temporary helpers are getting more proficient and with the three new subprofessionals we have hired during the past two weeks, we are able to accomplish the work.

I think that the flies which we are putting out this week will mate more effectively than those released during the first six weeks of the experiment. Next week's flies should be even stronger. Mr. Graham is exceeding the 2,000,000 production quota this week and I am sure he will continue to do as well from now on. We hope that the value of the flies we are putting out this week will begin to show up in a greater proportion of sterile egg masses in collections made after June 17. Perhaps we may get 50 percent sterile egg masses in pens 9 to 12 during the week of June 24-30.

(Same distribution as last week.)

R.C. Bushland

2-A.W.Lindquist-6-12-57

Table 1.--Egg mass data, week of 6/2 through 6/8/57.

Pen : number:	Location	: Total: : masses:	Sterile: masses :	Group : total :	Percent sterile
1	15 miles north of treated area	71	0		
2		25	0		
3		27	1		
4		17	0	140	0.7
5	Near center of treated area	45	4		
6		103	8		
7		20	1		
8		14	5	182	10.0
9	Southeast of center of treated area	48	11		
9a		112	27		
9b		131	18		
10		62	12		
11		14	2		
12		9	2	376	19.1
13	14 miles south of treated area	27	2		
14		30	0		
15		25	0		
16		20	1	102	2.9
17	12 miles west of treated area	6	0		
18		7	0		
19		11	0		
20		21	1	45	2.2

Table 2.--Fly release data, week of 6/2-6/8/57.

Date (1957)	: :	Number of boxes	: :	Approximate number of flies
6/3		788		591,000
6/4		459		343,000
6/5		313		235,000
6/6		342		256,500
6/7		407		305,000
Total		2,309		1,730,500

Livestock Plus

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
Entomology Research Division

P. O. Box 3391
Orlando, Florida
June 26, 1957

OK

AIRMAIL

To: A. W. Lindquist, Head, Insects Affecting Man and Animals
Section, Plant Industry Station, Beltsville, Maryland

From: R. C. Bushland

Subject: Weekly Report--6/16 through 6/22/57

Attached are three tables of data illustrating the progress of our field test.

Mr. Baumhover's egg mass data in table 1 show the best results we have obtained so far. In the Deer Park area 25.3 percent of the eggs were sterile. This shows a great improvement over the average of around 10 percent we had been finding. Pens 9-12 showed 40 percent sterility which also sets a record and encourages the previously expressed hope that we will get 50 percent sterility in that most isolated area during the last week of June.

Table 2 shows that Mr. Graham met his quota of 2 million flies last week. The insects were packed at the rate of 550 pupae per box. Adult emergence averaged only a little more than 80 percent, otherwise the fly quota would have been exceeded. All the corrective measures we could think of to assure better emergence and more vigorous flies have been put into effect, but as the pupal period requires 7 days and adult mortality readings are taken a week later, the final results will not be known for another week.

In table 3, Mr. Skipper has summarized the reports of his rancher cooperators. You will note that the case incidence reports check with the numbers of egg masses taken at goat pens to illustrate that there is a real outbreak of screw-worms. Apparently the population reached a peak during the last week in May and has declined in June. The drop in cases was similar in the three check areas and in the release area. The reduction in case incidence can be attributed to the end of the calving season as there has not been enough rain to flood the pastures in the St. Johns River Valley.

In response to your request for a rating of this year as compared with the preceding years, Mr. Skipper will get reports on 1956 and 1955 cases from the same ranchers and we will transmit the data in a forthcoming weekly report.

(In triplicate)

cc: Dr. Sharman (4)
Dr. Campbell (1)
Mr. Bruce (2)

Dr. C. N. Smith (1)
Kerrville (1)
Corvallis (1)

2-A. W. Lindquist-6-26-57

Table 1.--Egg mass data, week of 6/16 through 6/22/57

Pen : number:	Location	: Total: :masses:	Sterile: masses:	Group : total	:Percent :sterile
1	15 miles north of treated area	47	0		
2		86	0		
3		51	0		
4		16	0	200	0
5	Near center of treated area	43	9		
6		42	10		
7		79	27		
8		22	1	186	25.3
9	Southeast of center of treated area	45	14		
9a		94	35		
9b		130	57		
10		41	14		
11		20	11		
12		3	2	333	40.0
13	14 miles south of treated area	33	0		
14		11	0		
15		17	0		
16		17	0	78	0
17	12 miles west of treated area	7	0		
18		8	0		
19		1	0		
20		14	0	30	0

Table 2.--Fly release data, week of 6/16 through 6/22/57

Date (1957)	: :	Number of boxes	: :	Approximate number of flies
6/18		879		386,760
6/19		879		386,760
6/20		804		353,760
6/21		1,075		473,000
6/22		970		426,800
Total		4,607		2,027,080

3-A. W. Lindquist-6-26-57

Table 3.--Screw-worm case incidence as reported by rancher cooperators.
(1957)

Number of: cooperators:	Total acreage	: April : cases	: May : cases	: Cases : 5/26-6/1	: Cases : 6/2-6/8	: Cases : 6/9-6/15
<u>North check area (near goat pens 1-4)</u>						
5	22,010	122	120	90	53	35
<u>Fly release area (near goat pens 5-12)</u>						
18	448,560	1,146	1,143	755	568	462
<u>South check area (near goat pens 13-16)</u>						
4	74,000	355	360	236	194	159
<u>West check area (near goat pens 17-20)</u>						
8	211,880	412	405	235	237	139

